

#### **4.3.4.1.2 Site Infrastructure**

Implementation of the vitrification alternative for immobilization of Pu with radionuclides requires construction and operation of facilities to conduct the vitrification processes. The potential impacts to the site infrastructure at six representative DOE sites for construction and operation of a vitrification facility are described below. Data for construction and operation are presented in Appendix C. Site infrastructure changes resulting from such construction are presented in Table 4.3.4.1.2–1, and changes from operations in Table 4.3.4.1.2–2.

##### ***Hanford Site***

[Text deleted.] Construction and operation of this facility would require construction of transportation links to existing road and rail networks. DOE plans to site this facility close to existing roads and railroads to ensure that such construction and operational requirements would have negligible impact on the site infrastructure.

##### ***Nevada Test Site***

[Text deleted.] Construction and operation of this facility would require construction of transportation links to existing road and rail networks. Additional oil would be required during the period of construction and for operations. Since oil availability is governed by usage and not by storage capacity onsite, the additional oil required could be procured through normal contractual means or the construction companies could provide for this additional oil from local suppliers.

##### ***Idaho National Engineering Laboratory***

[Text deleted.] Construction and operation of this facility would require construction of transportation links to the existing road and rail networks. DOE plans to site this facility close to existing roads and railroads to ensure that such construction and operations impacts would be negligible to the site infrastructure.

##### ***Pantex Plant***

[Text deleted.] Construction and operation of this facility would require construction of transportation links to the existing road and rail networks. DOE plans to site this facility close to existing roads and railroads to ensure that such construction and operations impacts would be negligible to the site infrastructure.

##### ***Oak Ridge Reservation***

Additional oil would be required during the period of construction and during operations. Since oil availability is governed by usage and not by storage capacity onsite, the additional oil required could be procured through normal contractual means or the construction companies could provide for this additional oil from local suppliers for construction use. Construction and operation of this facility would require construction of transportation links to existing road and rail networks. DOE plans to site this facility close to existing roads and railroads to ensure that such construction and operational impacts would be negligible to the site infrastructure.

##### ***Savannah River Site***

[Text deleted.] If existing facilities were used for part of the operations, the construction impacts would be lower. Additional oil would be required during the period of construction and during operations. Since oil availability is governed by usage and not by storage capacity onsite, the additional oil required could be procured through normal contractual means or the construction companies could provide this additional oil from local suppliers for construction use. Construction and operation of this facility would require construction of transportation links to existing road and rail networks. DOE plans to site this facility close to existing roads and railroads to ensure that such construction and operational impacts would be negligible to the site infrastructure.

**Table 4.3.4.1.2-1. Additional Site Infrastructure Needed for the Construction of the Vitrification Facility Alternative (Annual)**

Facility Requirement	Electrical		Fuel		
	Energy (MWh/yr)	Peak Load (MWe)	Oil (l/yr)	Natural Gas (m <sup>3</sup> /yr)	Coal (t/yr)
<b>Hanford</b>	2,000	5	94,000	0	0
Site availability	1,678,700	281	14,775,000	21,039,531	91,708
Projected usage without facility	345,500	58	9,334,800	21,039,531	0
Projected usage with facility	347,500	63	9,428,800	21,039,531	0
Amount required in excess to site availability	0	0	0	0	0
<b>NTS</b>					
Site availability	176,844	45	5,716,000	0	0
Projected usage without facility	124,940	25	5,716,000	0	0
Projected usage with facility	126,940	30	5,810,000	0	0
Amount required in excess to site availability	0	0	94,000	0	0
<b>INEL</b>					
Site availability	394,200	124	16,000,000	0	11,340
Projected usage without facility	232,500	42	5,820,000	0	11,340
Projected usage with facility	234,500	47	5,914,000	0	11,340
Amount required in excess to site availability	0	0	0	0	0
<b>Pantex</b>					
Site availability	201,480	23	1,775,720	289,000,000	0
Projected usage without facility	46,266	10	795,166	7,200,000	0
Projected usage with facility	48,266	15	889,166	7,200,000	0
Amount required in excess to site availability	0	0	0	0	0
<b>ORR</b>					
Site availability	13,880,000	2,100	416,000	250,760,000	16,300
Projected usage without facility	726,000	110	379,000	95,000,000	16,300
Projected usage with facility	728,000	115	473,000	95,000,000	16,300
Amount required in excess to site availability	0	0	57,000 <sup>a</sup>	0	0
<b>SRS</b>					
Site availability	1,672,000	330	28,390,500	0	244,000
Projected usage without facility	794,000	116	28,390,500	0	221,352
Projected usage with facility	796,000	121	28,484,500	0	221,352
Amount required in excess to site availability	0	0	94,000 <sup>a</sup>	0	0

<sup>a</sup> Fuel oil requirements in excess to site availability could be procured through normal contractual means.

Source: HF 1995a:1; INEL 1995a:1; LLNL 1996c; NTS 1993a:4; OR LMES 1995e; PX 1995a:1; SRS 1995a:2.

**Table 4.3.4.1.2-2. Additional Site Infrastructure Needed for the Operation of the  
Vitrification Facility Alternative (Annual)**

Facility Requirement	Transportation		Electrical		Fuel		
	Roads (km)	Rail- roads (km)	Energy (MWh/yr)	Peak Load (MWe)	Oil (l/yr)	Natural Gas (m <sup>3</sup> /yr)	Coal (t/yr)
<b>Facility Requirement</b>	<5	<5	12,000	3	378,500	0	0
<b>Hanford</b>							
Site availability	420	204	1,678,700	281	14,775,000	21,039,531	91,708
Projected usage without facility	420	204	345,500	58	9,334,800	21,039,531	0
Projected usage with facility	425	209	357,500	61	9,713,300	21,039,531	0
Amount required in excess to site availability	<5	<5	0	0	0	0	0
<b>NTS</b>							
Site availability	1,100 <sup>a</sup>	0	176,844	45	5,716,000	0	0
Projected usage without facility	645	0	124,940	25	5,716,000	0	0
Projected usage with facility	650	<5	136,940	28	6,094,000	0	0
Amount required in excess to site availability	0	<5	0	0	378,500 <sup>b</sup>	0	0
<b>INEL</b>							
Site availability	445	48	394,200	124	16,000,000	0	11,340
Projected usage without facility	445	48	232,500	42	5,820,000	0	11,340
Projected usage with facility	450	53	244,500	45	6,198,500	0	11,340
Amount required in excess to site availability	<5	<5	0	0	0	0	0
<b>Pantex</b>							
Site availability	76	27	201,480	23	1,775,720	289,000,000	0
Projected usage without facility	76	27	46,266	10	795,166	7,200,000	0
Projected usage with facility	81	32	58,266	13	1,173,666	7,200,000	0
Amount required in excess to site availability	<5	<5	0	0	0	0	0
<b>ORR</b>							
Site availability	71	27	13,880,000	2,100	416,000	250,760,000	16,300
Projected usage without facility	71	27	726,000	110	379,000	95,000,000	16,300
Projected usage with facility	76	32	738,000	113	757,500	95,000,000	16,300
Amount required in excess to site availability	<5	<5	0	0	341,500 <sup>b</sup>	0	0
<b>SRS</b>							
Site availability	230	103	1,672,000	330	28,390,500	0	244,000
Projected usage without facility	230	103	794,000	116	28,390,500	0	221,352
Projected usage with facility	235	108	806,000	119	28,769,000	0	221,352
Amount required in excess to site availability	<5	<5	0	0	378,500 <sup>b</sup>	0	0

<sup>a</sup> Includes paved and unpaved roads.

<sup>b</sup> Fuel oil requirements in excess to site availability could be procured through normal contractual means.

Source: HF 1995a:1; INEL 1995a:1; LLNL 1996c; NTS 1993a:4; OR LMES 1995e; PX 1995a:1; SRS 1995a:2.